"UNITY" SUNDAY SCHOOL LESSONS,

Series XI.

The More Wonderful Genesis,

BY

HENRY M. SIMMONS.

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"Unity" Sunday School Lessons — Series XI.

THE MORE WONDERFUL GENESIS;

OR

CREATION UNCEASING.

BY H. M. SIMMONS.

LESSON I.

THE OLD GENESIS STORY.

For a long time the first chapter of the book of "Genesis" was read as Moses' inspired and true account of creation. To-day we sometimes hear men make sport of it. But this is not the wise way. Whatever errors it may contain, the story is

BOTH BEAUTIFUL AND NATURAL.

Read it again, and see how simple its language. See too in how noble and dignified a style it speaks of Deity. It does not, as many seem to think, picture a visible Creator, rudely shaping all things by hand, like a mechanic. It rather represents God as a creative "breath" or "spirit,' moving invisibly through chaos, and working by command or fiat: "Let there be light," "Let the earth bring forth," "Let the waters bring forth." It is almost as if the old writer, like a modern poet, saw Deity working only through law. Then too see how thoroughly natural the old story is when read aright.

WHY THE SEVEN DAYS?

This creation in six days, and rest on the seventh, may seem absurd to us; but it appeared quite reasonable to the ancient Eastern nations. For long before the story was written, the week was kept as a sacred division of time among them. A large part of their earliest religion had been the worship of the seven visible planets, including the sun and moon. To these seven planets, or planetary gods, as they often fancied them, they had dedicated many things in series of sevens,—among others the successive days. Relics of the old custom still remain in our names Sunday, and Monday or moon-day. Our names of the next four days are taken from corresponding Teutonic gods; but in the French language we still see them called after the planets: Mardi, or Mars' day; Mercredi

or Mercury's day; Jeudi, or Jupiter's day; and Vendredi, or Venus' day The seventh was consecrated to the farthest planet, and we still call it Saturday, or Saturn's day. On account of the gloomy notions about this last slow planet and god, this seventh day was kept austerely as a day of rest by the ancient Babylonians, and in that sense was called *Sabattu* by the later Assyrians. From the Assyrians the Israelites seem to have derived their Sabbath of rest, which soon came to be one of the chief features of their religion. It being held so sacred, men sought to trace an ancient and divine origin for it. Hence the Sabbath naturally entered into their speculations about the genesis or origin of things, and helped to shape this story of creation. Their so sacred rest-day was thought to have been heralded and sanctioned by a divine rest; and as they, in preparation for it, finished their work in six days, so they fancied the Creator had finished his. Viewed in this way, the "six days" of the story are no longer absurd, but a natural outgrowth of the sacred regard for the wise and blessed rest of the Sabbath day.

WHY IN THIS ORDER?

Not only the "six days," but the successive days' works in the order of the story, are natural. It may seem strange to us that they could think trees, and even day and night, created before the sun. But to them the sun was not, as to us, the great source of light and life, but only a sort of lamp for the mere inside of

THE WORLD-TENT.

For the old poetic tent-dwellers of the east figured the world as a greater tent:—the level earth as its foundations; the domed sky as its roof, with sun, moon and stars as moving lights hung under it; while beyond the blue sky-roof were "the heavens," holding the waters that fed the rains and were the source of all things, but also inhabited by the various divine beings. This so natural fancy was frequent in the East, and often occurs in the Bible. A psalmist (Ps. 104: 2) figures the Creator 'stretching out the sky like a curtain," or canopy; and Isaiah (34: 4) tells how the sky "shall be rolled together as a scroll," and the stars shall fall off like leaves from a vine or figs from a tree. Sometimes the sky-roof is made solider, and Job (37: 18) figures it as "strong and like molten glass." Above it are the waters and the dwelling of God, who, according to a psalmist (Ps. 104: 3) "layeth the beams of his chambers in the waters." Thence, by opening the windows of the sky, God sent down the rains, as in the story of the flood, and the manna (see Ps. 78: 23), and "pours out a blessing" (see Mal. 3: 10). These were doubtless partly poetic figures, but were often regarded as facts; and so late as in our era, Cosmas, in hi:

'Christian Topography of the Universe," describes the world in detail as built on the plan of the Hebrew tabernacle or tent.

From this same thought the "Genesis" story is written. Hence, after he creation of "the heavens" or divine dwelling, and of the formless and still watery earth as foundation for the tent, the six days' works are marked out in this order:

1. The general light and the day itself created in preparation for the work.

2. The world-tent pitched. The sky or "firmament" spread out like a canopy, dividing the earth below from the waters and heavens above.

3. The watery chaos beneath drained, "the waters gathered to one place," and the dried tent-floor of land carpeted with grass and furnished with all vegetable life.

4. The finished tent now hung within with sun, moon and stars,—chiefly to light the inside, but also with movements to mark the time of day and year.

5. The furnished and lighted tent next stocked,—beginning with the less important regions of sea and air, with fish and fowl.

6. Lastly, the land, the chief apartment, stocked with beasts and cattle; and, among them, man made and placed as the godlike ruler of all.

7. The Creator's rest, consecrating the Sabbath.

So orderly and natural is this old "Genesis" story. But of course

NO LONGER TAKEN AS TRUE.

Few scholars to-day think it came from Moses, or that it was written until many centuries after Moses' time. It seems to have been partly borrowed from the East by the Israelites and adapted to their theories. But wherever it came from, it was only a guess at the problem, and no more inspired and infallible than other guesses. Indeed, much experience and study since have shown its mistakes and corrected them. Geology shows that the creation of the earth occupied hundreds of thousands of years, instead of six days; nor is there any truth in the supposition that the "days" meant ages, for the writer speaks naturally throughout, and his repeated mention of evening and morning shows he meant literal days. Geology and botany both declare that trees were not created before the sun, as here, and we know day and night were not. Most astronomers think the sun was created millions of years before the earth itself. The old "Genesis" story, however natural and poetic, is not true.

BUT A GREATER GENESIS IS STILL SEEN.

Though the old story proves wrong, the divine work and wonders of creation are not thereby lost or lessened, but increased. For under it is

found, written in nature, a greater story,—far older, yet ever new,—the story of *creation unceasing*. The little only becomes large, and the "days" everlasting. Even the very acts of the old story are all still done, not once alone as there, but going on before our eyes forever; while manifold other creative acts are added. Science searches through the universe only to find written everywhere this more wonderful and diviner genesis or birth.

The aim of these lessons is to trace this greater genesis:—to show how much more marvelous are the real facts than the old writer's fancies; how that wondrous week is still here in this week, and those six divine "days" are repeated in every day; and how even science sings a grander and more religious hymn of creation.

LESSON II.

THE GLOBES AND THEIR CREATION.

"FOURTH DAY."

Genesis I: 14-19.

The "Genesis" story, regarding sun, moon and stars as mere "lights" for the inside of the world-tent, naturally added them late. On the "fourth day," after day and night, sky, seas, land and plants are all created, and the world finished,—then these "lights" are made and hung in the firmament roof,—the last act before the animal inhabitants are added. But we now know that the sun and stars were made before any of these things. We will, therefore, take the "fourth day" first.

THE SOLAR SYSTEM.

But before we ask about the creation of the heavenly bodies, let us notice how much more wondrous things they are than the story make them. Even the earth is much larger than the writer knew, a globe too with lands and seas on the other side,—a miracle he could not have believed. But the moon shows a greater marvel. So far and large. When two surveyors, a mile apart, see an object in almost the same direction, they know it is far away, and by measuring the difference of direction can tell just how far. But let the surveyors go a thousand miles apart, still both see the moon in almost the same direction,—it is so much farther. By means of instruments they find, however, a little difference, and so learn that the moon is 240,000 miles away, and is another globe, 2,000 miles through.

But the moon is surpassed by the planets. Sailing 1,000 miles shows no change in their direction. Instead of sailing, let the earth's rotation for twelve hours carry you the whole length of its diameter,—still no change, except in one case. Mars at certain times gets near enough so that this movement of 8,000 miles changes its direction a trifle. How much? Not so much as taking a single step changes the direction of a steeple two miles away! Thence the distance of Mars is figured, and its size found larger than that of the moon. The other planets are so much further they have to be measured in other ways. But Venus proves to be about as large as the earth, while four planets are vastly larger. Jupiter is in diameter ten times, and in volume a thousand times, larger than the

earth. These planets also have moons of their own, several larger than ours.

But all these planets together are as nothing to the sun. This, instead of a mere light "to light the earth," is in diameter a hundred, and in bulk a million times greater than the earth,—as much as the largest pumpkin is larger than a pea. Instead of a light for the earth, the sun whirls the earth around it, at the rate of nearly eighteen miles a second, and the other planets in like manner. The little "firmament" melts away, and we see moons revolving around planets, and planets around the sun, to make the solar system.

THE STARS.

Yet even this sun is but a speck compared with the stars. This old writer thought them of little importance, and in his story of creation gave them only two words in the original. But the stars are other suns, seeming so small only because so far away. Instead of letting the earth's rotation carry you 8,000 miles, let its semi-revolution around the sun move you 180,000,000 miles. How much does this vast voyage change the direction of the stars? The nearest of them, *Alpha Centauri*, is so far away that its direction is not changed so much by this movement of 180,000,000 miles, as the direction of that steeple two miles away is changed by your moving the length of your thumb. It takes the very nicest instruments to measure the change. But they do. This nearest star is thus found to be nearly twenty millions of millions of miles away, and giving out three times as much light as our sun. Two other stars are found about twice as far. Sirius is three or four times as far away: and, if its light is of the same brightness as our sunlight, must be in volume more than a thousand times larger than our sun. A few other stars can be measured with much uncertainty: but nearly all are too far away to be measured at all. All, however, are plainly suns. Probably each, too, like the sun, is the center of another system of planets. In many cases one or more of these inferior attendants can be seen in the large telescope as a minute point, slowly revolving around its star or sun. From these we infer countless others, which of course we should not expect to see.

Some five thousand of these stars, or suns, can be seen by the naked eye. But this is almost nothing compared to the whole number seen in the telescope, which some now estimate at seventy-five millions. Think of it! More stars than you, counting one every second for ten hours each day, could count in five years. Each of these stars a sun like ours, and probably surrounded by planets like our earth. So does the old world-ten enlarge, and such are its "lights."

MORE WONDERFULLY HUNG,

too, than by any fastening to a solid "firmament." Hung by nothing and to nothing! Floating freely, like a boy's balloon,—even more marvelously, for with no air to float them. Strange ships sailing through space so swiftly, yet with no sea to bear or wind to blow them. In the presence of astronomy the old firmament is "rolled together as a scroll," yet the loosened stars do not fall, as the prophet saw them, like leaves or figs. Or rather,—a still greater wonder,—they are forever falling, yet finding their safety in the fall,—falling around each other in orbits of eternal order. The moon falling around the earth by the same law as the loosened leaf or fig, and moving over a mile every second. Sun and stars falling around other centers, and some moving twenty miles a second! The earth, too, falling around the sun, and swiftly rolling as it falls. Yet all moving so truly that they are still "signs" "for seasons, and for days, and for years," and for moments, too;—so that by these golden pointers on the dial of the sky the astronomer corrects his clock to the fraction of a second. How much more wonderful than lights fastened to a firmament are these living worlds, fastened by their very falling, and all held and propelled so truly by God's hand of gravity!

LESSON III.

GLOBES AND THEIR CREATION. (CONTINUED.)

THE "FOURTH DAY" STILL HERE.

But wondrous as was the work of that "fourth day," it is still done every day. The divine days never end; creation ever continues. We have but to look up to see the creative hand still moulding globes and hanging them in the heavens.

GLOBE-CREATION CLOSE AT HAND.

As you stand looking into empty space the fog begins to form around you. What is it? Watch! Countless little specks of mist suddenly made there, as if by magic; yet the specks all perfect spheres,—dainty worlds, actually created as if from nothing and hung on nothing, right there within touch of your fingers. Then the fog rises and floats away and you see it is just like any cloud. All day long, above your head, these clouds are forming in the same manner, built up mile upon mile against the blue sky,—countless millions of spheres, created and hung in systems, and all done before your very eyes.

How? The professor tells you that where you saw nothing was really invisible vapor,—widely scattered molecules of water, too fine to be seen by eye or even microscope. But attraction has drawn the invisible molecules together into larger visible mist specks, to make fog and cloud. The same attraction draws the mist spheres together into larger ones: and if these become large enough to overcome resistance, draws them to the earth in rain drops. So by this force of *attraction*, or *gravitation*, the Creator is still moulding, hanging and moving globes by the million in our own atmosphere.

GLOBE-CREATION FAR AWAY.

Now look beyond our atmosphere into the depths of space with the telescope. There too you find many hundreds of white spots which the astronomers call clouds, or nebulæ, as the word is in Latin. Of course, infinitely larger than ours, millions of miles in extent. These too are thought to have been drawn together by the same attraction, out of the far thinner world-vapor, which floats through space as water-vapor does through air. The spectroscope shows they are still in a state of vapor.

The same attraction is still working there. In one or two cases astronomers think they trace changes in these nebulæ,—not from minute to minute, as in clouds, but from century to century. And even where the slow changes cannot be traced, we seem to see different stages in the process of attraction and condensation. Some nebulæ are marked with radiating spirals, as if the matter were moving toward the center, and the movement had begotten a slow rotation,—just as water moving toward an orifice always forms a whirlpool. Some look as if in the rotation a portion were slowly detaching itself to move in an independent orbit around the mother mass,—on the same principle as a drop of water flies from the whirling grindstone, or the grindstone itself flies in pieces if the rotation becomes fast enough. These same processes, if long enough continued, would separate the nebulæ into a system of rolling spheres revolving around their various centers. So astronomers think that the same attraction, or gravitation, which out of water-vapor is rounding the rain-drops and sending them to the earth, is in like manner, out of world-vapor, rounding those rolling drops we call stars and suns and planets, and sending them in their orbits as solar systems.

THE NEBULAR HYPOTHESIS.

Our own sun and planets and earth seem, from their motions and various evidence, to have been rounded and set rolling in this way. This "nebular hypothesis," as it is called, is not accepted by all, but is by the most and best of scientists. It is not a fancy, as may seem from our short notice, but the earth beneath and heaven above are strewn with facts in its support.

A MORE REVERENT RELIGIOUS THEORY.

And how much grander and more religious a thought of creation it gives! For, to the deeper thinker, this *attraction* that rounds the worlds is only the hidden hand of God. A mediæval painting shows the Creator, on that "fourth day," in the form and dress of a man, sticking sun and moon, like shining wafers, on a solid sky. How much more reverent is science's picture of a Creator, unseen indeed, yet working always and everywhere, from within arm's reach to the farthest sight of telescope, still rounding the spheres, from mist globules that refresh life to mighty globes that support it, and hanging suns and systems through the infinite firmament on these unseen threads of law! It is an infinite and eternal Genesis. The old Bible opens with a beautiful text: "In the beginning God created the heaven and the earth." But the Bible of modern science and faith opens with a far finer one: "*Without beginning and without end, from everlasting to everlasting, God creates the heavens and the earths.*"

LESSON IV.

THE FIRST DAY.

Genesis I: 2-5.

We pass now from the gathering and shaping of worlds to the early conditions and creations in them. We will take for comparison "the first day" of Genesis, which shows God moving on the watery deep and creating light. Let us see if the wonders of this, as of the "fourth day," are not still done and outdone.

"THE FACE OF THE DEEP."

The "Genesis" story, like many old cosmogonies, regards water as the source of all things, and so pictures the earth as at first a formless and empty "deep," a "face of the waters." But we can see an earlier world,—its "waters" not yet created. We know that the earth was once too hot to hold any water, and that its seas did not yet exist except in clouds. The planet Jupiter seems to show us another world still in that condition; for astronomers think his ever-changing surface is a dense envelope of clouds,—his oceans not yet made. Our rocks tell of a still earlier earth, with its "deep" a fiery sea, in whose waves of molten granite the very mountains were still held in solution, and above whose heat not even clouds could exist, but "the waters" were yet invisible vapor. Geology tracing the same process further backward sees a still intenser heat, in which not even this vapor could exist, but its elements, oxygen and hydrogen, had not yet united. Astronomy again confirms this. The sun shows its water-vapor not yet created, its hydrogen still floating free in an envelope thousands of miles thick;—the other elements free too, our various compounds not yet made. From star after star the spectroscope brings back the same story. There, too, hydrogen and other elements are seen yet free,—and only a few of these, as if not all of our so-called elements were yet compounded and created. In such state the earth seems to have once been. But as we thus trace the earth backward to its vapory elements, its heat, too, finally disappears. Just as heating a hailstone melts, boils, vaporizes and cools it again to its original state for new clouds; so restoring to the earth in thought the heat which it has lost, leads us backward to that world-vapor in space, from which nebulæ seem to be still gathering. This shoreless abyss of invisible world-vapor

is indeed a "deep," far more formless and void than "the waters" of the story.

WARMING THE WORLDS.

Let us now see how far more wondrously than the writer thought the creative spirit moved and still moves through this primal deep. We saw in the last lesson how a mysterious attraction or gravitation, like a creative hand, gathers and rounds this vapor into rolling globes. But in the process it heats the globes too. Condensation and pressure always create heat. The hammer heats the iron: the axle under pressure sometimes burns the car. Even air you can compress in a tube until it kindles tinder; and the meteor rushing into our atmosphere is set on fire by the pressure. The scientists tell us that even the condensation of vapor into rain drops produces heat. By the same principle the infinitely vaster and longer condensation of world vapor into globes creates that intense heat which the earth once had and the sun still has. This creation, too, still continues. Some astronomers think the sun's present supply of heat is kept up by meteoric masses falling from space into his surface, at the rate of some 300 miles a second as they would fall by gravity alone,—tremendous blows of the creative hammer heating the sun as our blows heat iron. More, however, think the sun's present heat is maintained by that same condensation and contraction of his mass which has heated all the globes: and mathematicians tell us his diameter would have to contract only four miles a century (too little for us to see in ten thousand years) to create all the heat he radiates. Stars, too, are heated by the same process, many much hotter than our sun, judged by their brightness; and from some, though so many millions of millions of miles away, the heat is even felt by delicate instruments.

This creation is far too important to omit. The true Genesis story adds the text, "God said let there be heat," and that "it was good." How good! The old heat of the earth still helps to keep it alive; while the new-created heat of the sun turns winter into summer and death into life, making breezes blow and rivers flow, trees leaf and cattle live. And is it not a divine creation? How divine we should call it could we see the hand of God building our fire! Yet here is a more wondrous unseen hand, that has filled the earth beneath with heat, as a foot stove, and built that vast hearth-fire of the sun, around which worlds are gathered in family circle, receiving comfort, food and life. If the poet sees the gravitation which rounds the worlds divine, how much more so when it warms them too!

CHEMICAL CREATIONS.

But turn from the sun to your own fire, and you see this creation made

still more wonderful by another. Here is the same welcome heat, created in somewhat the same way too,—by the *attraction* between the coal and air. But this is a new form of attraction, called *chemical affinity*, and brings new creations. Gravity masses matter together and creates globes; but chemical attraction combines the elements in still closer union and creates new compounds. The carbon in the coal and oxygen in the air combine to create the carbonic acid which is the food of plants and builds the forests. Or turning to the gas-flame you may see the very "waters" of the story created. The hydrogen in the gas unites with oxygen in the air, and creates water-vapor;—and there you may see it, instantly after the lamp is lighted, condensing on the cold chimney in the form of steam. So by this chemical attraction, combining two or more substances to form a third, the materials of seas and rocks and about everything else on earth have been made, in endless variety of compounds and creations.

MIGHTIER MOVEMENTS.

Often these creations show far fiercer force than fire. The old writer tells how the spirit or breath of God "moved on the face of the waters,"—perhaps referring to the wind on the sea. But what mightier movements than he dreamt of occurred long before, in the creation of the waters. The professor combining the oxygen and hydrogen to make a few drops, brings an explosion that shakes the room. What terrific shocks shook the earth to create the water of the oceans! Or to see the movements long before water is created we have but to look at the sun. There you see spots which the astronomers tell you are hollows vastly larger than the whole earth, yet dug and leveled in a few days. In the storms attending these spots the observer sometimes sees matter shot 100,000 miles high, and at the rate of over 100 miles a second,—as if something could be thrown from Chicago to Milwaukee between two ticks of the clock, and with such force that it would keep on four times around the earth before stopping. Rarely do our hurricanes blow 100 miles an hour. But we are told that storms sometimes sweep through the sun's chromosphere at such rate as if a hurricane should in half a minute after crossing the St. Lawrence reach the Gulf of Mexico. Perhaps, as many think, the sun is still too hot for chemical combinations, and these storms are generated by heat and electricity or other forces beyond our knowledge. But, however made, we there see on a stranger "deep" than "the face of the waters," a far mightier "breath of God" than this writer fancied.

LESSON V.

"THE FIRST DAY." (CONTINUED.)

"LET THERE BE LIGHT."

But with the heat and chemical unions comes a still more wondrous creation For still "the spirit of God moved on the face of the waters" which you saw made by the gas-flame, and said, "Let there be light." Said it silently through law, but none the less divinely. The professor, explaining little words by long ones, tells how heat made the carbon particles incandescent, and so started luminous vibrations. But why the light came he cannot tell. With all our science, every gas-light comes as mysteriously as the "light" of the story, and writing again on the darkness this old sentence, repeats the miracle of creation.

And what a miracle, when we stop to think! Those carbon particles in the gas were too fine to see; yet they instantly made a roomful of light,—even sent the light through the solid window and across the city to other eyes a miles away, before you had time to take down your hand. What a marvel that would be if it were seen but once! And how much greater when it is repeated every time a match is struck!

Or see the creation on a larger scale. The carbon particles in the greater heat of the magnetic current shine with more blinding brightness as the electric lamp, filling the square with light and sending it a score of miles. Or put a piece of common lime in the fierce heat of the oxy-hydrogen flame, and see the old miracle repeated exactly. This flame is simply the union of these two gases, and the creation of water-vapor; but amid the water the dazzling lime writes again the old word, "Let there be light." By this calcium light we look back to that vast oxy-hydrogen flame which made our oceans, and in whose intense heat the whole globe shone brighter than this lime. And we know that still earlier the earth shone yet brighter, like a sun.

DAY.

As the earth cooled, its light grew dim and ceased. Darkness and the original night came again; yet only in a little spot behind the planet. For everywhere else shone a still more wondrous light of day,—created not before the sun, but by it. So the earth, forever rolling from under its night shadow, ceaselessly continues the old creation. The dawn travels

around it, forever "dividing the light from the darkness;" the sunrise follows, forever writing for some land, in golden letters on the heavens, the old creative word, "Let there be light."

SUNLIGHT.

And what a light! Against the face of this sun even the calcium light looks like a black spot. For wondrous as was the creation we saw through man's agency, it is far more so beyond his reach. The pressure of your hand on the match, and the chemical and electric forces you manage, light a table, or a circle on a screen near by. But the pressure of the creative hand of gravity on the sun, with perhaps other forces there beyond our chemistry, light worlds many millions of miles away, more brightly, too, than 1,000 candles would light your room. Nor do all the planetary worlds together receive the millionth part of the sun's light, but the same day blazes out in every direction through space.

An ever new creation, too. You are reading the lesson by light actually created only a few minutes ago. Think of it! This wondrous product, manufactured, shipped ninety millions of miles, and delivered at your window, all in eight minutes!

ITS WONDERS.

And still the wonder grows with science. What marvelous trains and tracks are these that bring the light. Rays more wonderful than any railroad; wave-circles more curious than any car-wheel; unending trains so swift that they would go from Chicago to Boston before you could wink. And not only coming straight from the sun, but reflected from every object on earth in every direction;—the tracks crossing each other in infinite complexity, the trains forever running through each other. Yet with no stop nor confusion, but ever bringing to our eyes not only the light, but the unbroken pictures of everything before us.

For here is a still greater wonder. This light is an artist, too, sketching and sending in all directions exact portraits of everything it touches. Not in mere light and shade, but in colors also. For each ray in the beam of light, each hair in the wondrous brush, carries paints of all colors and mixes them in countless hues. So the light sends its ever-changing paintings of cloud, sea, field, flowers and faces, in all directions;—even condenses them in microscopic miniature in our eyes, yet so faithfully that we see the man across the street or the mountain across the State exactly as they are.

Not only these passing pictures in the eye, but permanent ones in the photograph. There the light draws your picture while the artist is picking up his pencil, sketches the whole street while the horse's foot is still

poised in air,—more correctly than any artist, too. How patiently this light works! The astronomer exposes the negative to the dim nebula for hours, and so lets the light slowly draw details which are too faint for his eye to see in the telescope. How swiftly, too! He takes a photograph of the sun in the twenty-thousandth part of a second, and so preserves details too fleeting for his eye to catch. Yet even the wonders of light in the photograph are outdone by those in the spectroscope, where we see these delicate rays even bringing the secret of the sun's structure and telling the very elements he is made of.

STARLIGHT.

So the wonders of the light are revealed all the day. Nor does even the night hide, but still increase them. From moon and planets the sunlight is reflected, showing how, beyond our little shadow, day fills the solar system. While from stars a million times further than the sun, the light now comes with still larger story. Borne by these wondrous waves, traveling 100,000 miles while you take a step, and so traveling not for eight minutes like our sunlight, but for as many years and often centuries. Yet in this long voyage these delicate rays have not once forgotten their message, but write it in the spectroscope as faithfully as if they came but from across the street, telling us of countless other systems like ours, and how through them all the Creator is still warming the worlds, and forever saying, "Let there be light." Night is but a shadow and passing phantom; the eternal fact is *Day*.

LESSON VI.

THE AIR "FIRMAMENT" AND ITS WATERS.

"THE SECOND DAY."

Genesis I: 6-8

The "first day" of "Genesis" leaves only a watery world. Beneath was "the face of the waters." Above also: for, in the ancient thought this original element prevailed everywhere. God laid "the beams of his chambers in the waters," and in the heavens were the reservoirs of the rain. Naturally, therefore, the next act for the creation of dry land was to separate and protect the earth below from the waters above. This is the work of "the second day:" "God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament." The Hebrew word for "firmament" means something either beaten out or spread out; and in the writer's mind may have referred either to a solid dome, or more likely to a canopy or tent,—as the sky is often figured in the Bible. But at any rate it was the world roof, created chiefly to hold out "the waters above," but also holding sun, moon and stars as lights beneath.

OUR ATMOSPHERE A ROOF.

We have seen how much the writer was mistaken. The "lights" are other vastly greater worlds; the "firmament" that holds them is no roof, but boundless space; the "waters" are not "above" it, but only in its lowest stratum,—our atmosphere. Yet this air, though but the thinnest film beneath the sky firmament, is a sort of roof, so curiously wrought and so cunningly holding up the waters, that we may notice it in the comparison with the "second day."

The air seems a nothing; we hardly feel it, and cannot see it. Yet it is as real as any raftered roof. The professor weighs it; when it moves it pushes ships; in tornados it crushes the stoutest roofs man can make. And even far above the earth, where it is many times thinner, it still, like a protecting roof, checks and almost stops the meteors that rush into it from outer space, and is hard enough to set them on fire by the blow, or heat them white hot in a second.

HOLDING UP THE WATERS.

And how curiously it holds up the waters! You cannot see them, but they are everywhere in it. They are even in the air in your room, and you have but to bring in a cold stone to see them gather on it in a thin film thickening into drops. So the earth, which is a larger stone, gathers them out of the clear air every night in dew Dr. Dalton estimates that in England dew enough falls every year to make a coat of water five inches thick. This air is, without walls, always holding up vast floods of water in this invisible state we call vapor.

In visible state too. A cold air blowing into a warm one contracts and collects this thin vapor into mist specks floating over the meadow as fog. For miles above the meadows, by the same process, the fogs are ever gathering as clouds. Curious cisterns, whose walls are only water and foundations only air, yet floating in the breeze or tumbling in the tempest without spilling a drop. For this air holds them up as really as the story's fancied roof. Without air these dainty mist spheres would fall to the earth, sometimes half a mile in a second. They do ever tend to fall; but the air resists them much or little according to their smallness. A water drop one thousandth of an inch in diameter could fall only two inches in a second in still air. But generally the air is not still, and often rising more than that, so that the water drops have to become much larger before they fall at all. Even great drops, one-fourth of an inch through, could fall in air only thirty-four feet in a second. This air really holds up the cloud cisterns like a roof, checks the rain-drops, and holds back the hail-stones which would without it kill us like bullets.

A ROOF FOR SHADE AND SOUND.

But this atmosphere is roof in other ways. Though so clear that its fifty miles and more of thickness seem to hide nothing, it yet shades from the sun by day, and gives us the beauty of the dawn and evening. Without it sunlight would be blinding glare, every shadow blackness, and day pass at once into night. But by refraction and reflection this air diffuses the light like ground glass, and hanging over the earth like a vast sun-shade, turns the dazzling brightness into the soft splendor of the day, and extends the day in the twilight. It decomposes the light too spreading the sunset colors over the sky-ceiling, and turning the cloud-cisterns into frieze and ever shifting decorations glorious with crimson and gold, like a cathedral roof.

And how much better than any cathedral roof does it gather the sound and send music to our ears. Take the air out of the church and the singing

would be silent, and the organ only jar us. The roof aids, but the air makes the sound. Without this atmospheric roof, the roar of the sea, the music of birds and voices of friends would cease, and the earth become dumb.

The air is indeed a roof, shading for our work and adorned for our worship;—a temple dome covering all the earth, resounding all the day with the divine music of life, and forever frescoed afresh by the hand of the Creator for the matin and vesper service.

LESSON VII.

THE "AIR FIRMAMENT" AND ITS WATERS.

(Continued).

A ROOF FOR WARMTH.

See further how the atmosphere aids us in warmth. Like a roof it moderates the sun's mid-day heat; like a roof it retains the day's heat and warms by night. We have but to go up a mountain or in a balloon, partly out of the air, to find by freezing how it warmed us. Like a great blanket, it cosily wraps the earth about. Without this air-covering to moderate extremes, our ponds would well nigh boil at noon, and would freeze every summer night.

EVEN BURNING TO WARM US.

But this air roof warms still more wondrously than by retaining the sun's heat. It makes our artificial heat. Without air every fire would instantly go out, and no one could be built again. We speak of wood and coal as our fuel; but even more truly air is the fuel, and we are burning it up all the time. We open the draft to get more air into the stove. We add the chimney to lamp, house and factory, to send air in swifter current to the fire. The blacksmith blows the bellows with his arm, and the blast furnace blows them with engines of 1,000 horse power, only to faster feed the fire with air. This air seems the real fuel which warms our houses and works our factories.

Warms and works in our bodies in the same way. Breathing is only a burning, the doctors say, producing warmth and force within, just as fire without. Lungs are bellows to keep up the draft. Breath is ever burning us. Give us air, and we keep warm and work. Shut off the air and we grow cold, and go out like any fire.

The chemist tells us, in explanation, that air is one-fifth oxygen, which in its greedy union with various substances makes fire and heat. Pure oxygen makes far fiercer fire, kindling again a blown out candle, and in the flame burning iron wire like string. Our air is this oxygen diluted with four times as much nitrogen, and so burns more gently. It unites with carbon in fuel and flesh, heating stove and body alike, and producing carbonic acid gas, which passes off in smoke and breath.

How much more curious this air roof than any tent-cloth! Through the dull warp of nitrogen is woven everywhere this wondrous woof of oxygen;—all unseen, yet without whose covering no fire nor man could live an instant. Not only a roof which warms by its shelter, but which is ever burning to make fire and life within.

HOW BUILT?

And still the wonder grows, when we see how this roof was built, and is still built as fast as burnt. This oxygen was once the most abundant element in the earth. But in those chemical unions and creations, which we saw in the last lesson, it combined with nearly everything else in countless compounds. Some, however, was left over, and mingling with this nitrogen and other uncondensed gases, remained above the earth as an atmosphere. That atmosphere was, however, very different from ours. For a long time the waters were all held in it in vapor, as Jupiter's seem to be now. After the waters had condensed to form the oceans, the air was still heavy with carbonic acid; for all the carbon had united with oxygen. In such an air we could not have lived, nor our fires burnt. There was too little oxygen, and too much of the poisonous carbonic acid.

But when, in the lapse of ages, plants were created, this poison was made their very food. They absorbed, digested, decomposed it, packed away its carbon in woody fiber, and gave out its oxygen to the air. So age after age trees grew, far more abundant than now, steadily sucking in the poisonous acid and storing its carbon for the coal beds, slowly sending out the oxygen to its present proportion in the air. So our atmosphere is like a roof in another way,—it has been built from the trees.

AND FOREVER REBUILT.

Is still being built in the same way. Our fires and breathing are ever burning it,—still worse, are ever making this deadly acid. But the trees are ever working as creative arms, repairing the damage. Their busy fingers cunningly pick the unseen poison from the air. Still more cunningly they divide each particle that slays into two that save, giving us carbon for fuel and food, and oxygen for fire and breath; making timber for our little roofs, and repairing this earth-roof that shelters all.

The waters above it are also forever created afresh. The creative hand of gravity, which out of vapor globes the rain drop and draws it down, by the same principle heats the sun, and thereby reverses gravity, turning the sea back to vapor, and lifting the waters above the firmament again. With what power! One tells us that to lift back to vapor in the upper air a rain which covers the United States only one-tenth of an

inch, requires more power than all the steam-engines in New York, Philadelphia and Chicago could produce, running day and night, for a century. Nor is this water merely lifted, but purified, filtered, literally distilled, and, as it were, created anew.

So "the firmament" and "waters above" it are an unceasing creation. Ever, as on that "second day," the Divine hand is rearing the wondrous roof,—shade and screen by day, gorgeous ceiling in the twilight, warming cover through the night, and celestial fire to heat our houses in winter. and our bodies to life

LESSON VIII.

THE CREATION OF LAND.

"THE THIRD DAY." PART I.

"The waters below" being thus roofed by the firmament and protected from the "waters above," the next act of the story is from them to create dry land. This work occupies the first part of "the third day" of Genesis: "God said let the waters under the heaven be gathered unto one place, and let the dry land appear."

THE ROCK FLOOR.

But how much more wondrous a work than in the story! After the attraction of gravity had globed, heated and lighted the earth; after, in the earth's cooling, the attraction of chemical affinity had combined the elements and created the compounds; then, with still further cooling, a new form of attraction appeared in the compounds, arranging their molecules in marvelous symmetry and beauty, and creating crystals. Probably much as now. See in the falling snow how cooling clouds have just crystallized into ice gems; see in any handful of sand how the cooling earth so long ago in like manner crystallized into gems of quartz. Doubtless in those old days the condensing rock-vapors often fell to the earth in storms of fire flakes of even more varied patterns than the snow. Often the crystals formed in the liquid surface, as they still do in freezing ponds, until the cooling earth was crusted with the primitive rocks.

When, with further cooling, the water-vapor had condensed in seas, the rock creation continued in them. For the primitive seas were charged with acids and various matter in solution, ever combining in new compounds, to settle in solid form. Often in the form of crystals;—see them everywhere in the stones about us, from the crystalline rocks to the little pebbles in the streets, whose smallest cavities often sparkle with gems, millions of years old, yet still as perfect as the fresh snow flakes. The tides, too, which are supposed to have once been far greater than now, wore away the shore and bottom of the shallow ocean and reshaped the rocks. The rivers added to the work. Most of the rocks we see are now supposed to have been created from the waters, by crystallization or deposit, though often changed afterward by heat.

So from molten matter or the seas the stone floor of the earth was laid, in granite and marble, tesselated with curious crystals, and wrought in mosaics of endless patterns and hues. And the waters, ever wearing and working over the primitive crust, laid floor upon floor in a long series,—Laurentian, Cambrian, Silurian, Devonian, Coal, Permian, Triassic, Jurassic, Chalk and Tertiary rocks,—an aggregate of many miles in depth, yet laid grain by grain through ages beyond all guessing.

RAISING THE MOUNTAINS.

Yet this rock floor, of so immense thickness, was folded like paper by the creative hand to form the mountains. Just as ice on a settling pond is curved, cracked, crowded and thrust upward in ridges by its own weight; so as the earth further cooled and contracted, its settling rocky crust was curved in vast valleys, cracked in great chasms, crowded with a force we cannot conceive, and thrust upward in long mountain ranges. The same gravity which rounded the rain drops and the earth, also sunk its sea-basins and lifted its mountain peaks.

CREATING THE CONTINENTS.

But the same force which raised these rock mountains, leveled them again in rich continents. By gravity the waters were ever "gathered together unto one place," ever falling in rain and rolling seaward in rivers. The rains softening the rocks with acid in summer, and splitting them with ice wedges in winter, slowly picked the crystal mountains to pieces. The streams rolled and wore the fragments, and bore the finer ones to the sea, to spread out thick strata of sandstone and clay, which the settling sea-beds again left dry. To learn this wearing power of water, read of our Western canons, where small streams have slowly cut long channels, sometimes a mile deep, in solid rock.

Even when crystallized in snow and hardened into ice, the waters were still "gathered together," as gravity slowly drew the glaciers downward. With what creative force! These glaciers, edged with imbedded rock and sand, like gigantic mill-stones, ground the granite cliffs into clay, and spread out the foundations of the fields over a large part of the world.

So the creative hand, taking for its tools these dainty snow-flakes and softer rain drops, as it gathered the waters to one place, crushed the rocks, carved the mountains and carted the chips along, building up broad continents of dry land, rich with fertile river valleys and wide plains and prairies.

AN UNENDING CREATION.

It was indeed "good." But the best thing about it is that this gathering together of the waters was not ended as in the story, but ever goes on with its ceaseless creation. For the gravity that heats the sun is ever lifting the waters again in vapor to soften the air, and bringing them down in rain to give life to the earth. The old crystal-creation is still repeated in some springs and in every snow storm, and the glaciers still grind down many a mountain slope. From the chaos of mud which each rain and snow return to the fields, the rills are ever running to dry the land anew, and the rivers to spread valleys with new soil. Having floored the earth for forests, they even float the timber downward, and saw it; having in the glaciers ground stones to soil to raise wheat, they still turn stones to grind the wheat for bread. So great and "good" a creation it is. In the current of every river the poet still reads this old creative sentence. In every brook he hears again the old words: "Let the waters be gathered together unto one place, and let the dry land appear;"—not the ended edict of a day, as in the story, but a ceaseless song of creation, and a sacred hymn of life.

LESSON IX.

THE CREATION OF PLANTS.

"THE THIRD DAY." PART II.

Dry land being thus made, and the world-tent floored, the next step in the story is naturally to carpet and furnish it for use. This is the closing work of "the third day:" God said, "Let the earth bring forth grass, the herb yielding seed and the fruit tree yielding fruit."

THE SUCCESSIVE FORMS.

But what an infinitely longer work as science sees it! Not done in an afternoon, but doing through ages. Long before grass grew or the mountains were formed, came the water plants, which this writer does not think worthy of mention, but which are scarcely less important than those of the land. Not to speak of the lowest forms, and the beautiful diatoms and desmids, which are supposed to have filled the primitive seas; here were great algæ which are still preserved as fossils through the thick rocks of the Silurian system. Long afterward, in the Devonian period, came mosses and ferns; and the latter, in the carboniferous times, rose into tree-like forms, and spread in thick forests, to purify the air and pack away the coal as we saw. Much later, in the Permian period, the first flowering plants, the palms and pines, came and grew in luxuriant abundance. Not till still later in the Triassic days did grass and the endogens appear, and with them the apetalous division of exogens, including many of our forest trees. Far later yet, in the Chalk period, came the first petaled exogens, including many of our fruit trees: and still later, in the Tertiary, their petals were first joined together in our beautiful cup corollas. So at least Haeckel dates the appearance of the various divisions.

CREATION BY EVOLUTION.

So long a work was this creation of plants. And how? Did a creator come down, as used to be thought, and make a parent form for each species when its time came? Or was this creation, like all others, by law, each form arising from a preceding? The latter, nearly all scientists say. Even this old writer represents the Creator, not visibly shaping

plants, but more nobly working through law and nature: "Let the earth bring forth." To this old poetic sentence science itself responds in Biblical phrase: "The earth brought forth,"—each species in its order, and all by law, one form growing from another in the gradual process of evolution.

AN EVER PRESENT MIRACLE.

We may well believe it; for everywhere in the plant-world we still see the process of evolution, and no other. Here, too, the creation is ever continued. Notice how the waters of a summer shower, still "gathered together unto one place" in the little ocean of a hoof-hole in the street, are in a few hours green with vegetable creation. Put a drop under the microscope and see it swarming with curious protococcus plants swiftly swimming like fish. Whence have they come so quickly? From germs in the air too fine to see, we are told. But not less divinely for that. The same creative power which makes mist and worlds, compounds and crystals, to grow as we saw, has made these germs to grow still more wondrously. So they enlarge into these single-celled plants floating in the wagon rut as in the primitive seas.

From single cells like these, all our plants and forests are still created before our eyes. You may watch the cell lengthen and divide to form the delicate threads of the algæ floating as a green scum on the road-side ditch. The great algæ of the seas, longer than any tree trunk, have each grown from just as simple a cell. The tree too. The oak has come from an acorn, and the acorn in turn from a cell too fine for the unaided eye to see. We need not deny the evolutionist's doctrine, that all the species of plants have come from a few simple forms; for all still come from forms so small and similar that they can hardly be distinguished. They are still created,—by growth and evolution indeed, but not the less by that mysterious organizing presence and power we call God.

So the miracle is repeated. Every spring the roots, cells, seeds, so lately seeming dead, become centers of new creation; the grass carpet and leaf tapestry are woven anew in the loom of life; and all summer the creation of herb yielding seed, and tree yielding fruit goes on. We find the fiat, "Let the earth bring forth," not uttered once alone, but still spoken through every tree and grass blade, and written in every drop of water and grain of dust.

LESSON X.

THE CREATION OF ANIMALS.

"THE FIFTH" AND "SIXTH" DAYS.

To the flooring and furnishing of the world-tent on "the third day" of the story, its lighting naturally followed on "the fourth," by the creation of sun, moon and stars. Being thus finished for use, its occupants are then created,—fish and fowl on "the fifth day," and the more important land animals, including man, on "the sixth." The "fourth day" coming first in the true order we have already noticed; the animals of the two following days we can treat together.

THE MAGNITUDE OF THIS CREATION.

Here, too, we see a far longer and larger creation. Away back in the Laurentian and Cambrian days some of the lower animals had appeared and are preserved in fossils. Then during the later and long Silurian period,—whose rocks aggregate some four miles in thickness,—the various invertebrate types came. There we find radiates represented in beautiful corals and crinoids; molluscs, in shells of great variety and abundance; articulates, in the old trilobites. Late in this period the vertebrates also began to appear in low order of fishes, which spread and became the leading forms of the following Devonian times,—though our true boned fish did not come until long ages later. In the Coal period these Devonian fish were followed by amphibia, with lungs as well as gills, hence able to leave the water for land. During the Permian period these amphibia spread through many species now extinct; and in the Triassic were followed by reptiles, with lungs instead of gills, hence leaving the water altogether and becoming true land animals. During the latter period reptiles rose into flying forms, as in the pterodactyl, with forward feet expanded in wings; and wings are at length feathered, for better flight in birds. Relics of these primitive birds are found already feathered, but still retaining the old teeth and tails of reptiles. Finally in this Triassic period, which was fertile in creations, the first mammals came, with increased care for their young. Through the Jurassic and Chalk periods the mammals remained in the lower marsupial order, but in the Eocene took the higher placental form. Through the Miocene and

Pliocene periods these placental mammals multiplied into the variety of higher animals we have to-day, rising through nobler forms until among them appeared the human body, noblest and most perfect of all.

So much more wondrous a creation than the old writer knew! Not finished in two days, but continued while rocks were laid, grain by grain for many miles in thickness. Not a few species to be gathered in a garden or shut in an ark, but how many? Over 300,000 living species have already been described; and Mr. Lubbock in a late address estimates as many more yet undescribed, and that the extinct species would swell the number to above two millions!

THE METHOD.

And how created? Shaped by a visible God mechanically in occasional creations, as some think? Or shaped liked the plants, through divine law and life, in a constant and unceasing creation? The latter, most scientists say. For here we see the same progressive order and gradual growth as in all the other creative work. Through the rocks we trace the earlier and weaker forms gradually followed by the stronger vertebrates; among the vertebrates the lower life of the water gradually passing to the higher of the land,—gills at first supplemented and then supplanted by lungs, which gradually enlarge, and in the better breathing bring higher warmth, force and life; the various organs gradually improving to correspond; fins becoming feet, and passing on one hand to wings for the air, and on the other to fingers for a higher life on the ground; nervous system gradually improving and concentrating in that noblest organ, the brain; and meanwhile the method of reproduction, which began with mere division, as in the lower plants, and which long remained by eggs abandoned like plant seeds to grow as they might, rose to the watched and warmed eggs of the bird, and the retained eggs of the mammal; and so that higher form of *attraction* between sexes, which had begun in plants, widened to include the offspring, and, in the higher animals reached parental care and family affection. So orderly and progressive has the creation been. And within this general relation special connecting forms are ever being found. The rocks in their broken bits of sentences from the earth's history seem to teach that the creation of animals, as of plants, has been one connected growth and evolution,—one species branching into many as gradually and naturally as the acorn into the oak.

THE CREATION CONTINUED.

This conclusion is confirmed when we see the same process still going on; for here, as elsewhere, creation is ever continued. Not only are ani

mal forms continually changing in domestication and new varieties thus created, but all the forms are still created as mysteriously as in the primitive world. In that hoof-hole in the road, where we saw the plants made so soon after the summer shower, we find animals created almost as quickly. In the small fraction of a drop from that little ocean you may often see them by the hundreds—single celled animals—very much like the protococcus plants, and come like them from the unseen as mysteriously as in the Cambrian seas. From such single and simpler cells all animal forms come. Watch the snails created every spring from minute specks that have grown from still minuter cells in the parent—a mollusc creation quite as marvelous as in the Silurian seas. So with the crustaceans. Watch the beautiful branchipus in some April pool. The little speck from which he has come, was, all last summer, lying dried and baked in the hot clay, or blowing in the dust; yet here, under the ice, it has grown into this fairy form, so brilliant with blue and red, its fins as branched as a fir-tree, serving as gills too, and waving in graceful rhythm as he swims on his back. Here, by the roadside, he has been created as wondrously as the old trilobite, of which he is a close relative. Or watch the creation of water vertebrates in any fish hatchery. And to see the swimming forms turned into land animals, watch the black specks in any spring ditch, as they slowly change into gilled tadpoles, and these again to lunged frogs, which take to the fields. Every frog condenses into a single season those many changes which we call miraculous creations when following slowly in the far off ages. And why should we doubt that creeping species slowly grew into flying ones, when every butterfly still springs more wondrously from a worm? Birds, too, still pass obscurely through a gilled form in the hatching egg, and every mammal in its pre-natal growth,—all still repeating dimly these creations of countless ages, and each coming from a single unseen cell. We need not deny the evolutionist's doctrine that all animal species have come from a few simple forms; for out of forms so simple and similar that they cannot be told apart still come all the myriad animal creations from mollusc to man.

THE MORE REVERENT THOUGHT.

And how much diviner a creation this theory shows! Old pictures represent a visible God shaping a few fish, fowl and beasts, and then clumsily building up Adam from clay, and fashioning Eve from a rib. How much more reverent and religious a thought does science suggest, of a Creator still and forever speaking these old fiats, "Let the waters bring forth abundantly," and "Let the earth bring forth the living creature!"

An unseen but infinite spirit of life, forming all species, and not forsaking, but forever filling them from generation to generation; with divine constancy holding each form to its type; with as divine change gently adapting each type to its surroundings with continued progress; so reaching man and ever raising man; and out of simple cells, infinitesimally finer than Eden's clay or Adam's rib, still creating, not merely two human beings one day, but 50,000 every day, and creating them not to fall and ruin the world, but to rise and ever redeem the world to higher use beauty and blessing!

LESSON XI.

MAN'S "DOMINION" AND "DIVINE IMAGE."

We have thus traced creation upward to the wondrous human body But we have yet to notice in man a more marvelous mental, moral and spiritual creation. The old "Genesis" story, exalting man, pronounces him made "in the image of God," to "have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." But to-day we may see in man a far higher "dominion" and more God-like "image."

This human pair of "Genesis" were indeed little better than animals. Naked in body, as naked in mind, with no taste yet of "the tree of knowledge," so that the only thing we hear of them doing with this pleasant Eden is—to lose it. Unmoral, too, with no "knowledge of good and evil," mere creatures of appetite, eating and falling, the man meanly blaming the woman. Their religion only fear,—trying to hide "amongst the trees" from a weak God who "walked in the cool of the day," and who was outwitted by a serpent, and cursed his creation. Poor savages they remain to the last,—their highest products, so far as the story tells, "aprons of fig-leaves;" their first-born son a murderer; their race for long centuries given to violence, and so worthless and wicked that the Lord "repented that he had made man," and at length sent a flood to destroy them. So low a creation was this man of "Genesis."

The primitive man was, indeed, much like this:—probably rising in tropical Edens, along those fertile river valleys, among abundant trees "pleasant to the sight and good for food;" but a low savage, naked or clad in leaves as Schweinfurth saw them in Africa, thinking toil an evil and most ground cursed, of mere animal appetites, brutal and ignorant, morality unborn,—their religion only fear of gods as fickle as themselves. Long they remained in this low Eden, plucking spontaneous fruits, and with the mere hunter's "dominion" over fish, fowl and beast which they but "named" and slew for food

But learning to eat from "the tree of knowledge," not once alone, but daily, and with ever increasing appetite, they lost indeed this lazy Eden of animal content, and went forth to toil and trouble, yet not to fall, but to rise to ever higher dominion and divine image. From the hunting

stage they advanced to the pastoral, and learned not merely to kill, but to keep the animals for readier food and more varied service. Then, through the long and slow progress of agriculture, they learned not merely to pluck but to plant fruits and seeds, to till the ground, and find under its fancied curse a blessing. Its grasses they slowly turned by tillage into richer grains; its "thorns and thistles" into trees and plants, with finer fruits and fairer flowers. Instead of losing Eden, they were learning to turn the wide world into an Eden. Even the waste waters were to be stocked with fish. Fowl and cattle were not only multiplied but new varieties created, as among plants. Man was showing his "image" of the Creator, not merely by "dominion," but by becoming creator himself.

Still more did man show his divine image by learning to master and even to make for himself the other creations of the story. Below the "firmament" roof he created a more sheltering roof of his own; and within it he learned to turn the firmament into fire, and create warmth in winter and light in the night. This fire which he at first, perhaps, caught from the volcano or lightning, he learned to create at will from rubbed wood or struck stone; and at length this agent which we saw so slowly created by pressure on the planet, he learned to create in an instant by pressure on a bit of phosphorus. No wonder the savage thought our familiar match, by which man could carry the volcano and the lightning in his pocket, and make the fire flow and flash at will, "the greatest miracle since creation." Then man learned to make the wind fuel blow faster, and to create fiercer fire in forge and furnace; so he dissolved the rocks and melted the metals again, and rose from the Eden age of stone, through successive ages of bronze and iron and steel. In this growing dominion he learned to enslave the streams as he had the cattle, and to make the waters, as they were "gathered together unto one place," to work for him, grinding, sowing, weaving. So, instead of old Hebrew tents, came boarded and beautiful homes; instead of Biblical women wearily turning stones all day to mash a little meal for the family, came great flouring mills to feed foreign states; and instead of Eden's fig-leaves, came factories making fine cloths by the mile. Not only the waters, while "gathered together," but while scattered again, he made to work for him; and creating to order those wondrous "waters above the firmament," he sent them in his steam engines to drive machinery, to draw cars across the continent, and ships over the seas, to carry crops and comforts everywhere.

Ever eating faster and with keener appetite from "the tree of knowl-

edge," he learned in his chemistry of the original elements of creation, and how to get back to them, and mix them in endless new creations with ever growing dominion. He learned new dominion over his own body; how to throw man any time into as deep a sleep as Adam's in the story, and to painlessly remove more important bones than ribs, and make about as good to take their place. He learned in his medicine to heal and save, to "put forth his hand and take also of the tree of life," and lengthen his years below.

Better yet, he learned to make each year longer and life larger with ever-growing knowledge and power. See, for instance, what he has done with that light of the story. Out of old sand heaps he created glass clearer than quartz, to flood his house with light. Out of the glass he made cunning lenses to increase the light. So with spectacles he saved and strengthened his eyes when they failed. Even created, as it were, new eyes;—telescopes to see a thousand times further, and microscopes to see ten thousand times finer, so bringing within his vision above and below infinite worlds of wonder. Out of the same glass he made a prism as a plaything, and then turned the plaything into a spectroscope, which showed substances far finer than the microscope could, and reaching beyond the telescope, brought down the stars to tell him what they were made of. So he has gone on, enslaving this light to all sorts of service, from bleaching his linen to painting his pictures. And not only the light of the sun, but the more mysterious light of the storm. Upon this lightning in which savage and psalmist saw an angry God, man has laid his hand, and, learning to manage and to make it, sets it up as a steady lamp to supplement the sun, and sends it as a new savior to strengthen the nerves of men, and carry their messages under the ocean and around the world,—no longer a demon to slay, but an angel to save and serve.

These are a few examples of man's "dominion,"—vastly higher above Adam's than was Adam's above the apes'. And ever this "dominion" grows; here, too, the creation is unceasing. Most of this dominion has been won in the last century, and every year its attainments become more marvelous. Thus man seems a being infinite in mental vision and power; and the farther he reaches the faster he rises. As lord and creator, he advances with geometrical progress, and reveals every year a clearer "image of God." And man to-day, summing up so briefly this long progress, advancing in so few years from an invisible speck of matter to this mental dominion over earth, space and time, shows an ever-repeated miracle of creation before which all those of old story are as nothing.

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